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IS 12734 (2002): Textiles Polypropylene Twine [TXD 9: Cordage]

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Edition 2.1
(2003-07)

भारतीय मानक

वस्त्रादि — पोलीप्रापलीन ट्वाइन — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

TEXTILES — POLYPROPYLENE TWINE — SPECIFICATION

(First Revision)

(Incorporating Amendment No. 1)

ICS 59.060.20;59.080.50

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Group 2

Cordage Sectional Committee, TX 09

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Cordage Sectional Committee had been approved by the Textile Division Council.

This standard was originally published in 1989. The present revision has been made in the light of the experience gained since its publication to bring it in line with the present practice in industry for incorporating the requirements of twines having linear density from 56 tex (500 denier) to 111 tex (1 000 denier).

The composition of the Committee responsible for formulation of this standard is given in Annex B.

This edition 2.1 incorporates Amendment No. 1 (July 2003). Side bar indicates modification of the text as the result of incorporation of the amendment.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES — POLYPROPYLENE TWINE — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the constructional details and other requirements of polypropylene twines.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provision for this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
667 : 1981	Methods for identification of textile fibres (*first revision*)
832 : 1985	Methods for determination of twist in yarn (*first revision*)
1324 : 1966	Glossary of textile terms relating to man-made fibre and fabric industry (*first revision*)
1670 : 1991	Textiles—Yarn—Determination of breaking load and elongation at break of single strand (*second revision*)
3871 : 1996	Textiles—Fibre ropes and cordage—Glossary of terms (*second revision*)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1324 and IS 3871 shall apply.

4 MANUFACTURE

4.1 Yarn

The yarn used for manufacture of the twine shall be polypropylene multifilament yarn of appropriate denier as required for that particular construction of twine as given in Table 1. The identification of polypropylene filament may be done according to IS 667.

4.2 Twine

The twist in the twine shall be in the opposite direction to that of yarn. The twine shall be evenly twisted and free from defects.

5 REQUIREMENTS

The twine shall comply with the requirements for each constructional detail as specified in Table 1.

Table 1 Requirements of Polypropylene Twine

(*Clauses* 4.1, 5 *and* 8.2.1)

Sl No.	Construction[1]	Runnage (m/kg)	Breaking Load N(kgf)[2] *Min*	Elongation Percent at Break	Turns/Metre[3]	
					Strand	Twine
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	56 tex × 1 × 2 (500d × 1 × 2)	8 570	58.9 (6.00)	20 to 40	280	240
ii)	61 tex × 1 × 2 (550d × 1 × 2)	8 140	61.8 (6.30)		280	240
iii)	67 tex × 1 × 2 (600d × 1 × 2)	7 000	64.7 (6.60)		280	240
iv)	67 tex × 1 × 3 (600d × 1 × 3)	4 500	95.2 (9.70)		300	150
v)	67 tex × 2 × 3 (600d × 2 × 3)	2 200	190.3 (19.40)		300	150
vi)	72 tex × 1 × 2 (650d × 1 × 2)	6 660	68.7 (7.00)		280	240
vii)	93 tex × 1 × 2 (840d × 1 × 2)	5 100	88.3 (9.00)		280	240
viii)	93 tex × 1 × 3 (840d × 1 × 3)	3 250	132.4 (13.50)		300	150
ix)	93 tex × 2 × 3 (840d × 2 × 3)	1 600	264.9 (27.00)		300	150
x)	93 tex × 3 × 3 (840d × 3 × 3)	1 050	392.4 (40.00)		300	190
xi)	111 tex × 1 × 2 (1 000d × 1 × 2)	4 280	117.7 (12.00)		280	240
xii)	111 tex × 2 × 3 (1 000d × 2 × 3)	1 430	353.2 (36.00)		300	150
Tolerance		± 5 percent				
Method of Test, Ref to IS No.		Annex A of this standard	IS 1670	IS 1670	Clause 7 of IS 832	

[1] 56 tex × 1 ×2(500d × 1 × 2) indicates that 2 yarns of 56 tex (500 denier) having twist in one direction (ply) are finally twisted in another direction (cable) to make the final twine.
67 tex × 2 × 3(600d × 2 × 3) indicates that 2 yarns of 67 tex (600 denier) are twisted in one direction (ply) and such 3 twisted yarns are again twisted in opposite direction (cable) to make the final twine.

[2] 1kgf = 9.81 N.

[3] For guidance only.

6 MARKING

6.1 Each package (box) containing spools shall be marked with following information:

a) Name of the material and construction,

b) Net mass,

c) Indication of the source of manufacture, and

d) Month and year of manufacture.

6.2 BIS Certification Marking

The twines may also be marked with the Standard Mark.

6.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and Rules and Regulations made thereunder. The details of the conditions under which the license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 PACKING

Unless otherwise agreed to between the buyer and the seller, the twine shall be packed as follows:

> Each spool shall be packed in polyethylene bag of minimum thickness 20μ or wrapped in polyethylene film of minimum 40μ thickness. Such spools are then packed in corrugated boxes so as to withstand the hazards of transportation.

8 SAMPLING

8.1 Lot

The quantity of boxes containing polypropylene twine of the same construction supplied to one buyer against one despatch note shall constitute the lot.

8.2 Sampling shall be representative of the lot as far as possible. Draw the samples of twine packages at random, at the rate shown by the following formula:

$$S = 0.4\sqrt{N}$$

where S is the number of packages to be selected as sample and N is the size of the lot expressed as the number of packages. When S as calculated is not a whole number, round off the value obtained to give a whole number in accordance with the requirements of IS 2. In case where S is less than 1, draw 1 sample package.

8.2.1 From each package selected, at least 5 spools shall be drawn at random for carrying out various tests as prescribed in Table 1. For each test at least two test specimens shall be selected from each spool.

8.3 Criteria for Conformity

The lot shall be declared conforming to this standard if the following conditions are satisfied:

a) Each individual test result for runnage satisfies the specified requirement, and

b) Average test results for breaking load and elongation percent requirements satisfy the specified requirements.

ANNEX A

(*Table* 1)

METHOD FOR DETERMINATION OF RUNNAGE

Remove 10 m length from package and weigh to the nearest gram. From the mass compute the legth in metre per kilogram. Similarly, determine the mass of the remaining 10 m pieces and compute their length in metre per kilogram.

ANNEX B

(*Foreword*)

COMMITTEE COMPOSITION

Cordage Sectional Committee, TX 09

Organization	*Representative(s)*
Garware-Wall Ropes Ltd, Pune	Shri R. M. Telang (***Chairman***) Shri S. J. Chitnis (*Alternate*)
Balaji Ropes Manufacturing Co Pvt Ltd, Kolkata	Shri Sandeep Agarwal
C A Polycare Pvt Ltd, Kolkata	Shri U. S. Chakraborty
Calcutta Port Trust, Kolkata	Shri P. L. Nag Shri S. K. Chatterjee (*Alternate*)
Coir Board, Alleppey	Shri P. T. Joseph Shri K. G. Raghavan (*Alternate*)
Delta Rope Mfg Co Ltd, Howrah	Shri Motilal Chakraborty Shri Tapan Guchait (*Alternate*)
Directorate General of Supplies & Disposals (Inspection Wing), New Delhi	Shri A. K. Sehgal Shri Sunder Lal (*Alternate*)
Indian Jute Industries' Research Association, Kolkata	Dr K. Jayachandran Dr D. Sur (*Alternate*)
Indian Rope Manufacturers' Association, Kolkata	Shri Nirmal K. Somani Shri T. Bhattacharjee (*Alternate*)
Jayashree Fibre Products, Kolkata	Shri B. K. Biyani Shri A. K. Saha (*Alternate*)
M. Best Cotton Rope Manufacturing Co, Mumbai	Shri Kantilal G. Thanawala Shri Hemal M. Thanawala (*Alternate*)
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Ministry of Defence (R&D), New Delhi	Shri Bramanand Shri M. L. Pal (*Alternate*)
Ministry of Defence (DQA Naval), New Delhi	Shri Laxman Singh Shri K. N. Sahu (*Alternate*)
Office of the Jute Commissioner, Kolkata	Shri D. K. Sarkar Shri D. K. Dutta (*Alternate*)
Office of the Textile Commissioner, Mumbai	Shri S. P. Ghosal Shri S. Chakrabarty (*Alternate*)
Research Design & Standards Organization, Lucknow	Shri M. N. Vaniker Shri A. P. M. Krishnamurthy (*Alternate*)
Shipping Corporation of India Ltd, Mumbai	Shri D. K. Ray Shri G. Sharma (*Alternate*)
United Rope Works, Kolkata	Shri S. N. Agarwal Shri A. Agarwal (*Alternate*)
BIS Directorate General	Shri M. S. Verma, Director & Head (TXD) [Representing Director General (*Ex-officio*)]

Member Secretary
Shri B. L. Bharati
Director (TXD), BIS

Bureau of Indian Standards

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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Amendments Issued Since Publication

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Amd. No. 1	July 2003

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